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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,320	01/27/2004	Manfred Fuchs	24,577-26US	9408

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EXAMINER

RAMIREZ, JOHN FERNANDO

ART UNIT	PAPER NUMBER
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3737

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/28/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/765,320

Applicant(s)

FUCHS ET AL.

Examiner

John F. Ramirez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/24/06 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-14 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s); at the time the application was filed, had possession of the claimed invention. "performing a source reconstruction for the signal filtered for the different latency range, and using the source reconstruction to determine another appropriate latency range" are considered to be new matter.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-13 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claims 1 and 20, it is unclear as to how one determines the latency range by using a source reconstruction. Therefore, it is also unclear as to how one refilters the signal at a different latency range.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-20 are rejected under 35 U.S.C. 101 because:

On October 26, 2005, the USPTO published Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility. See: (<http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101_20051026.pdf>).

This guidelines details a procedure for determining patent eligible subject matter. As to claims 1 and 20, the first step in this process is whether the claims fall within one of enumerated categories. In the immediate application, the claims are drawn to a process - a "method for processing electromagnetic physiological signals" - and meets this step. However, the analysis does not end here. The next step is whether a judicial exception (abstract ideas, laws of nature, natural phenomenon) is provided in the claim.

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In the immediate application, claims 1-13 and 20 clearly include one of the judicial exceptions in that “performing a source reconstruction for the signal and using the source reconstruction to determine an appropriate latency range” and the step of “performing a source reconstruction for the signal filtered for the different latency range, and using the source reconstruction to determine another appropriate latency range” are nothing more than abstract ideas, and claims 14-19 are directed to an apparatus including one of the judicial exceptions in that “a sensor for acquiring an electromagnetic physiological signal; a signal processing circuit in communication with the sensor; and a processor in communication with the signal processing circuit and configured to support multiple threads of execution with one thread being a measurement module and a second thread being a source reconstruction module” are nothing more than abstract ideas. While abstract ideas alone are not eligible, the claim as a whole must be analyzed to determine whether it is for a particular application of the abstract idea. For claims including such excluded subject matter to be eligible, the claim must be for a practical application of the abstract idea, law of nature, or natural phenomena. To satisfy the requirement of a practical application, the claimed invention must: (1) transform an article or physical object to a different state or thing; if no transformation, then (2) the claimed invention must produce a useful, concrete, and tangible result.

Regarding (1) above, the claims do not provide a transformation or reduction of an article to a different state or thing. Grouping equivalent dipoles based on predetermined criterion and solving inverse problems clearly do not transform an

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article or physical object to a different state or thing. Accordingly, one must then consider whether the claimed invention produces a useful, concrete, and tangible result.

(1) Useful Result

For an invention to be "useful" it must satisfy the utility requirement of section 101. The USPTO's official interpretation of the utility requirement provides that the utility of the invention has to be (i) specific, (ii) substantial and (iii) credible. See MPEP 2107. It can be argued that the claim does not provide a useful result in that the claim does not actually solve a problem. It does not appear to be specific as to how the problem is solved and, if solved, it is not specific as to the use of this solution.

(2) Tangible Result

The tangible requirement does not necessarily mean that a claim must either be tied to a particular machine or apparatus or must operate to change articles or materials to a different state or thing. However, the tangible requirement does require that the claim must recite more than a 101 judicial exception, in that the process claim must set forth a practical application of that 101 judicial exception to produce a real world result.

Regarding the tangible result requirement, the claim clearly does not provide a practical application. The problem, even if solved, is not practically applied to produce a real world result. For example, once the problem is solved, how is this then applied?

(3) Concrete Result

Another consideration is whether the invention produces a "concrete"

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result. Usually, this question arises when a result cannot be assured. In other words, the process must have a result that can be substantially repeatable or the process must substantially produce the same result again. Resolving this question is dependent on the level of skill in the art. For example, if the claimed invention is for a process which requires a particular skill, to determine whether the process is substantially repeatable will necessarily require a determination of the level of skill of the ordinary skilled artisan.

Regarding the concrete result requirement, the claim does not provide a result that can be assured in that the result can not be substantially repeatable and the process can not substantially produce the same result again.

In view of the above analysis, applicant's claims 1 and 20 are a process which includes a judicial exception therein. Upon review of the claim as a whole, there is no transformation nor does the claim produce a useful, concrete, and tangible result. Accordingly, the claims are non-statutory.

In relation to claims 2-13, and 20 depend from claims 1 and 20 respectively, and as such, include the various steps thereof. As discussed above, claim 1 and 20 are a method that provides no physical transformation and there is no practical application, which is useful, concrete and tangible.

In relation to claim 14-19 are an apparatus which includes a judicial exception therein. Upon review of the claim as a whole, there is no transformation nor does the claim produce a useful, concrete, and tangible result. Accordingly, the claims are non-statutory.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 7-11, 13-15, 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohyu et al. (US 6,187,032).

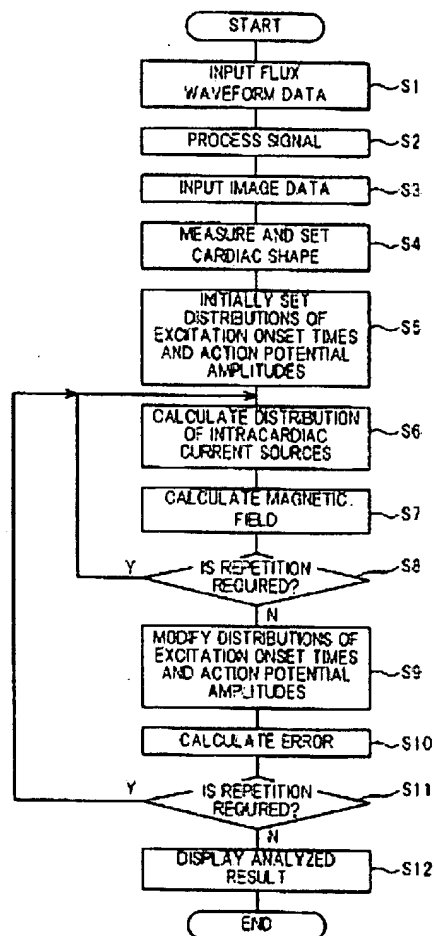


FIG. 7

In regards to claims 1, 2, 7-11, and 12, Ohyu et al. discloses a method for acquiring a first electromagnetic physiological signal, filtering the signal for a latency range (col. 11, lines 1-8), performing a source reconstruction for the signal (Fig. 7, steps S5, S6, S7), performing a source reconstruction for the signal to determine an appropriate latency range (Figure 7, steps S1-S4), performing the source reconstruction includes computing a single equivalent current dipole (col. 3, lines 56-63), using a concentric sphere volume conductor model (Fig. 7, step S7), using a Boundary Element Method (BEM) volume conductor (Fig. 7, step S7), using a Finite Element Method (FEM) model (col. 13, lines 16-30), averaging the filtered data (col. 11, lines 1-8), applying a dipole onto an anatomical image, creating a scatter plot of dipole locations (Figs. 2,3, and 17).

With respect to claims 14, 15, 18, and 19, Ohyu et al. discloses an apparatus comprising a sensor for acquiring an electromagnetic physiological signal (Fig.4, col.10, lines 31-40), a signal processing circuit in communication with the sensor (Fig.4, col.10, lines 31-66 – col.11, lines 1-8), a processor in communication with the signal processing circuit and configured to support multiple threads of execution with one thread being a measurement module and a second thread being a source reconstruction module (col. 12, lines 4-20), a display showing source reconstruction results overlayed onto anatomical data (col. 4, lines 10-36), wherein the sensor acquires ECG and MCG data (col. 22, lines 38-54).

With respect to claim 20, Ohyu et al. shows in Figure 7 a method of testing comprising the steps of: acquiring an electromagnetic physiological signal through a test

setup, determining the latency of the signal (col. 11, lines 1-16), performing a source reconstruction of the data within a predetermined latency range (S5, S6, S7), and using the source reconstruction to modify the test setup.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-6, 13, 16 and 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Ohyu et al. (US 6,187,032) in view of Kiyuna (US 6,073,040).

Ohyu et al. teaches all the limitations of the claimed subject matter except for mentioning specifically the step of performing the source reconstruction that includes computing a moving dipole, a rotating dipole, a regional dipole, a fixed dipole, comprising a signal to noise analysis of the required neurophysiological data, and wherein the sensor acquires MEG and EEG data.

However, the steps of (1) of performing the source reconstruction that includes computing a moving dipole, a rotating dipole, a regional dipole, a fixed dipole, (2) comprising a signal to noise analysis of the required neurophysiological data, and (3) wherein the sensor acquires MEG and EEG data are considered conventional in the art as evidenced by the teachings of Kiyuna (US 6,073,040).

The Kiyuna patent teaches the steps of performing the source reconstruction that includes computing a moving dipole, a rotating dipole, a regional dipole, a fixed dipole, comprising a signal to noise analysis of the required neurophysiological data, and wherein the sensor acquires MEG and EEG data (see abstract, Figure 1, col. 8, lines 47-67, col. 9 lines 1-31).

Based on the above observations, for a person of ordinary skill in the art, modifying the method disclosed by Ohyu et al., with the above discussed enhancements would have been considered obvious because such modifications would have provided an electrophysiological activity estimation method to estimate the number of dipoles with accuracy of active areas of a selected part of a living body.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John F. Ramirez whose telephone number is (571) 272-8685. The examiner can normally be reached on (Mon-Fri) 7:30 - 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JFR
02/21/07


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